MEMORANDUM FOR SEE DISTRIBUTION

FROM: HQ AFCESA/CEOT
139 Barnes Drive Suite 1
Tyndall AFB FL 32403-5319

SUBJECT: Electrical Power Production Utilization & Training Workshop (U&TW) Minutes

1. **PURPOSE:** To review and align AFMAN 36-2108 with the Career Field Education and Training Plan (CFETP), determine true 3-level student training requirements and career development course (CDC) requirements, verify/identify core tasks, and review supplemental courses to meet the future training needs for the career field.

2. **LOCATION:** 366th Training Squadron, Sheppard AFB TX

3. **DATES:** 10-14 July 2000

4. **ATTENDEES:** SMSgt Glenn L. Deese, HQ AFCESA/CEOT, chaired the workshop. See Attachment 2 for list of attendees.

5. **SUMMARY:** Modified the Electrical Power Production CFETP to meet existing requirements and aligned 3/5/7-level training requirements to match. Verified/identified core tasks and identified future training needs for the Electrical Power Production career field through supplemental training.

6. **DISCUSSION:**

a. **Opening Remarks**: Maj Yates, 366 TRS, opened the workshop by welcoming all attendees and pointing out the significance each member would play. Mr. Kee, 3E0X2 Training Manager, 366 TRS, echoed the welcoming and briefed the attendees on administrative matters.

b. **U&TW Objectives/Rules of Engagement/Introductions:** Electrical Power Production Career Field Manager and U&TW Chairman, SMSgt Deese, HQ AFCESA/CEOT, briefed attendees on the U&TW process. He also pointed out the importance of this workshop and how significant each member's role was to producing a quality product. He briefed the rules of engagement and led the group through a get-acquainted exercise.

c. **Community College of the Air Force (CCAF) Briefing**: SSgt Axt, AFIADL, provided the CCAF briefing and described the Electrical Power Production degree requirements. He gave a brief history of CCAF and identified the method to determine how courses qualify to earn degree semester hours.

d. **Civil Engineer Craftsman 7-Level Course (J3ACR3E070-000) Briefing:** Chief Wallace, 366 TRS/CCM, briefed the origin of the 10-day CE craftsman course and how it came as a result of the Year of Training (YOT) initiative. He gave a brief overview of the course content and emphasized the

importance of all attendees meeting the prerequisites before attending this CE management course. He emphasized that students not meeting prerequisites will be sent home. He briefed the ongoing battle with AFPC to keep the in-residence course and the resulting benefits for having the residency course.

e. **Training Evaluation Programs Briefing**: Mr. Mauldwin, 782 TRG, briefed initial results of the recent Field Evaluation Questionnaire (FEQ) for the Electrical Power Production apprentice course. He also provided data on the recent Graduate Assessment Survey (GAS) results and the Training Assessment System (TAS) survey results. He indicated that the trends and comments made on these surveys might be of benefit to the U&TW representatives during their discussion of tasks required for this AFS.

f. **Enlisted Matters/Expeditionary Aerospace Force (EAF) Briefing:** Chief Doris, HQ USAF/ILEM, highlighted that the CE community performs "big business" on a daily basis by comparing what we do against commercial industries. He also presented a thorough overview of the EAF concept and structure. He briefed on expected benefits, stability and predictability personnel can expect from the concept. He also explained the new make-up of the CE Unit Type Codes (UTC) and how they will deploy. He touched on the effect EAF will have on training and how training must be accomplished to meet our wartime mission.

g. **Review AFMAN 36-2108:** SMSgt Deese gave a short brief of how the review process would take place. The group then reviewed AFMAN 36-2108 and recommended changes. See attachment 4 for the recommended changes.

h. **CFETP Part 1 Review:** A review of the CFETP, Part 1 was conducted to reflect appropriate changes, additions and deletions. Again, the group made several minor recommendations and approved them without opposition (Atch 5).

i. **Occupational Measurement Squadron (OMS) Briefing:** Capt Cain, AFOMS/OMYO, gave the AFOMS briefing. The mission of AFOMS is to improve AF capability by providing quality occupational analysis, specialty knowledge tests (SKT), and study guides to support AF personnel management programs. AFOMS evaluates each career field every 3-5 years or as needed. Capt Cain pointed out that an analysis provided by AFOMS serves as a foundation for U&TWs and emphasized the importance of correctly filling out the surveys used to compile data.

j. **Proficiency Code Use:** A video was shown of Ms. Mary Koger, 366 TRS/TRR Chief, briefing the proper use and understanding of the proficiency codes in an effort to improve the process during the specialty training standard review.

k. **CFETP, Part 2, Specialty Training Standard (STS) Strawman Review:** SMSgt Deese briefed the participants on the schoolhouse's recommended changes for the strawman STS. Changes were based on local course subject matter experts, graduate assessment surveys, field recommendations, occupational survey report, and common sense. Constraints were briefly addressed. The participants were briefed on the implications of their final decisions and that the schoolhouse's recommendations should be used as a stepping stone to making group decisions. The participants reviewed the STS and recommendations were made (Atch 5).

l. **Core Task Review:** SMSgt Deese gave the briefing on core tasks. He gave a comprehensive definition of the qualification of a core task. He also urged the participants to look to the "essence of the career field" when selecting the core tasks. Discussion began at Section 9 and continued until all requirements had been reviewed and recommendations were made. The final draft was reviewed for

accuracy. SMSgt Deese noted that after the core task review, there were 50 five-level core tasks and 34 seven-level core tasks. He also noted there were now three 3c coded tasks in the apprentice course. See Atch 6 for the list of items identified as core tasks. (Several of the core tasks will convert to diamond tasks once a review is conducted to determine the availability of equipment for training.)

m. **Supplemental Course Training Standards (CTS) Review:** SMSgt Deese, along with the course staff, led a review of the supplemental course contents. The group reviewed the recommended course changes. Several changes were recommended and approved (Atch 7).

7. Draft Minutes Review: The group reviewed the draft minutes and action items and were approved as read.

8. Closing Remarks: SMSgt Deese thanked attendees for their participation and professionalism that made the U&TW a great success. The workshop adjourned on 14 Jul 00.

MYRL F. KIBBE, CMSgt, USAF
Chief, Training Division

Attachments:
1. Distribution List
2. Attendees
3. Signature Sheet
4. Changes to AFMAN 36-2108
5. Changes to CFETP
6. Core Task Requirements
7. Supplemental Course Changes
8. Action Items
9. CTS (Troubleshooting Elect Power Gen Equip)
Qualitative Requirements
10. CTS (Contingency Power Generator Operation
Qualitative Requirements
11. CTS (Aircraft Arresting System BAK-12) Qualitative Requirements
12. CTS (Hook Cable Support System BAK-14) Qualitative Requirements
13. CTS (MAAS) Qualitative Requirements

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366 TRS CC/TRR/TTE

ATTACHMENT 1

ELECTRICAL POWER PRODUCTION U&TW ATTENDEES

MEMBERS

NAME	OFFICE
SMSgt Glenn Deese – Chairman	HQ AFCESA/CEOT
TSgt Galen Batson	11 WG/11 CES/CEOUP
TSgt Walter Evans, III	AIA/10 IS/LGK
MSgt Ricky Lewis	AFSOC/16 CES/CEOIP
SMSgt Greg Bouman	ACC/99 CES/CEOIG
SMSgt Steve Karsten	HQ AMC/CEX
MSgt David Daniel	USAFE/100 CES/CEOIE
SSgt Jens Walle	AETC/82 CES
MSgt Brian Bealer	AFRC/926 CES
MSgt David Wosick	ANG/Fargo ND
TSgt Kurt Larsen	AFMC/75 CES/CEOP
MSgt John Dick	PACAF/51 CES/CEOIP
MSgt Luis Gonzalez	USAFA/10 CES/CEOHUP
SMSgt Dirk McDowell	AFSPC/Cheyenne Mt.

OTHER ATTENDEES

CMSgt Mike Doris	HQ AF/ILEM
CMSgt Joe B. Wallace	366 TRS/CCM/TTE
CMSgt Sue Wynn	HQ AFRC/CEXR
Capt Cain	AFOMS/OMYO
MSgt Troy Taylor	HQ ANG/CEX
MSgt Mark Scachetti	366 TRS/TTE
Mr. Tom Kee	366TRS/TRR
MSgt Rodger Brown	HQ AFCESA/CEXR
Capt Anthony Copeland	HQ AETC/DOOI
Mr. Charles Cheatle	366 TRS/TTE
Mr. Tony Merrit	366 TRS/TTE
MSgt Ricky Allen	366 TRS/TTE
Mr. Jeff Blackwood	366 TRS/TTE

ATTACHMENT 2

SMSgt GLENN L. DEESE
U&TW Chairman

Mr. TOM KEE
Electrical Power Production Trng Mgr

TSgt GALEN BATSON
11 CES/CEOUP

SMSgt GREG BOUMAN
ACC/99 CES/CEOIC

SSgt JENS WALLE
AETC/82 CES

TSgt KURT LARSEN
AFMC/75 CES/CEOP

MSgt BRYAN BEALER
AFRC/926 CES

MSgt RICKY LEWIS
AFSOC/16 CES/CEOIP

TSgt WALTER EVANS, III
AIA/10 IS/LGK

SMSgt STEVEN KARSTEN
HQ AMC/CEX

MSgt DAVID WOSICK
ANG/FARGO ND

MSgt JOHN DICK, JR.
PACAF/51 CES/CEOIP

MSgt LUIS GONZALES
USAFA/10 CES/CEOHUP

MSgt DAVID DANIEL
USAFE/100 CES/CEOI

SMSgt DIRK McDOWELL
AFSPC/CHEYENNE MT

ATTACHMENT 3

RECOMMENDED CHANGES TO AFMAN 36-2108

Superintendent

Para. 1: Add “resources and” between “Manages” and “activities”; add “/removal” between “installation” and “operation”

Para. 2.1.: Last sentence delete “other” between “with” and “civil”; replace “base activities” with “other agencies as required”

Para. 2.2.: First sentence replace “Directs electrical activities. Directs” with “Manages”; add “systems” between “electrical” and “and”; second sentence add “/removal” between “installation” and “, operation”; delete “high and low voltage work,”; third sentence delete “requisitioning of” between “controls” and “systems”; change “systems” to “system”; add “requisitions.” between “system” and “, parts”; delete “, parts, fuels, lubricants, bench stocks, and technical publications.”; fourth sentence replace “Analyze” with “Ensures”; fifth sentence replace “Monitors” with “Interprets”; change “organization” to “organizational”; sixth sentence add “power production” between “and” and “equipment”

Para. 2.3.: First sentence and “systems and power production” between “electrical” and “activities”; delete the period “.”; second sentence delete “Inspects electrical activities”; third sentence add a comma after maintenance; delete “and”; add “, and” between “supply” and “personnel”; fifth sentence replace “Obtains” with “Ensures”; replace “responsible for working on electrical systems and in power plants” with “as required”

Para. 3.1.: Sentence one add “system” between “distribution” and “; above”; delete “;” before “above”; delete “electrical distribution systems”; add “and mechanically driven devices” between “systems” and “; fire”; add “alarms” between “fire” and “and”; replace “detection alarms” with “detection systems”; delete the comma and add “and” between “diagrams” and “schematics”; replace “, and” with “;” between “schematics” and “technical”; add “and Air Force directives” after “publications”; replace “safety rules” with “safety regulations”

Para. 3.2.: Second sentence add “civil engineer” between “managing” and “functions”; add “alarms” between “fire” and “and”; replace “detection alarms” with “detection systems”

Craftsman/Journeyman/Apprentice/Helper

Para 1.: Add “removes,” after “Installs,”; add “maintains” after operates; replace “modifies” with “repairs”; delete “generating”; replace “production plants and equipment, and” with “generating and control systems,”; add “, and associated equipment” after “arresting systems”.

Para 2.1.: First sentence add “, removes,” after Installs; replace “plants, distribution equipment” with “generator control systems”; replace “transfer panels” with “transfer switches”; delete “and” after “transfer switches,”; add “, and associated equipment” after “arresting systems”; third sentence add “and” after “gasoline,”; delete “, and turbine” after “diesel,”; change “switchgears”

to “switchgear”; replace “power plant” with “power generating”; delete sentence four and five; sentence six add “rewinds,” after “positions,”; change “tensions” to “pretensions”; replace sentence seven with “Certifies aircraft arresting systems as required.”; sentence 12 delete “multi”; sentence 13 add “and low” after “high”; replace “switchboards” with “switchgear”

Para 2.2.: Sentence one add “, modifies,” after “Maintains”; replace “equipment” with “”and control systems,”; replace “transfer panels” with “transfer switches”; delete “and” before “aircraft”; add “, and associated equipment” after “arresting systems”; sentence two add “and” after “ inspections”; change “Interprets” to “interprets”; delete “inspection”; change “and” to “to”; sentence four add “Uses precision test equipment,” before “Troubleshoots”; change “Troubleshoots” to “troubleshoots”; add “,” after “malfunctions”; delete sentence five; last sentence delete “systems” after “generating”; change “prevent potential weapon systems failure” to “ensure overall mission success”

Para 2.3.: First sentence add “Reviews and” before “Advises”; change “Advises” to “advises”; replace “problems installing ……arresting systems.” with “projects associated with electrical power generating and control systems, automatic transfer switches, aircraft arresting systems, and associated equipment.”; delete second sentence; third sentence replace “Studies” with “Reviews”; delete comma after “drawings”; delete “and schematic”; replace fourth sentence with “Ensures new construction meets proper operating characteristics of equipment.”; fifth sentence delete “Develops and”; change “establishes” to “Establishes”

ATTACHMENT 4

RECOMMENDED CHANGES TO CFETP

Part 1, Section B, para. 4.1.: Add “removes,” after “installs,”; add “maintains,” after “operates”; replace “modifies” with “repairs”; delete “generating” after “electrical”; replace “production plants and equipment” with “generating and control systems”; delete “and” before “aircraft”; add “, and associated equipment” after “arresting systems”

Para. 4.2.1.: Add “, removes,” after “Installs”; replace “plants, distribution equipment” with “generating and control systems”; replace “panels” with “switches,”; delete “and” before aircraft; add “, and associated equipment” after “arresting systems”; delete bullets three and four; bullet five add “, rewinds” after “positions,”; change “tensions” to “pretensions”; add new bullet “Certifies aircraft arresting systems as required” between bullets five and six; bullet nine second sentence change “high/low” to “high and low”; change “switchboards” to “switchgear”

Para. 4.2.2.: Add “, modifies,” after “Maintains”; replace “equipment and” with “and control systems, automatic transfer switches,”; add “, and associated equipment” after “arresting systems”; first bullet add “and” after “inspections” and delete the comma; delete “inspection” after “interprets”; change “and” to “to” after “findings”; bullet three add “Uses precision test equipment,” before “Troubleshoots”; change “Troubleshoots” to “troubleshoots”; add comma after “malfunctions”; delete bullet four; bullet eight add comma after “rewind”; bullet 12 delete “systems” after “generating”; replace “prevent……failure” with “ensure overall mission success”

Para. 4.2.3.: Add “Reviews and” before “Advises; change “Advises” to “advises”; replace “problems installing …… systems” with “projects associated with electrical power generating and control systems, automatic transfer switches, aircraft arresting systems, and associated equipment”; delete first bullet; second bullet replace “Studies” with “Reviews”; delete “and schematic”; third bullet change to “Ensures new construction meets proper operating characteristics of equipment.”; fourth bullet delete “Develops and” before “establishes”; change “establishes” to “Establishes”

Para. 4.3.1.: Add “resources and” after “Manages”; add “/removal” after “installation”; replace “of” with “all” after “repair”; delete “above and below 600 volts,” after “systems,”; add a comma after “alarms”

Para. 4.3.2.1.: Fifth bullet delete “other” after “with”; change “engineer” to “engineering”; change “base activities” to “other agencies as required”

Para. 4.3.2.2.: Change “Directs” to “Manages functions in”; add “systems” after “electrical”; first bullet add “/removal” after “installation”; delete “high voltage and low voltage work,”; second bullet change to “Identifies and controls system requisitions.”; third bullet replace “Analyzes” with “Ensures”; fourth bullet replace “Monitors” with “Interprets”; fifth bullet add “power production” after “systems and”

Para. 4.3.2.3.: First sentence add “systems and power production” after “evaluates electrical”; second sentence delete “. Inspects electrical activities”; change “they comply” to “compliance”;

first bullet change “Helps” to “Assists in”; change “solve” to “solving”; third bullet change to “Ensures certification of personnel as required.”

Para. 7.: Delete second bullet

Section C, Para. 10.4.1.1.: Delete fifth bullet

Attachment 2, STS: Add “**Note 6:** Completion of the apprentice course meets the initial CPR certification for one year after graduation date.”

1.4.1.: Add “B” to column 4.C(1)

1.4.2.: Add “B” to column 4.C(1)

1.4.3.: Add “B” to column 4.C(1)

1.4.4.: Add “B” to column 4.C(1)

1.5.1.: Change “b” to “B” in column 4.C(1)

1.5.2.: Change “b” to “B” in column 4.C(1)

1.5.3.: Change “b” to “B” in column 4.C(1)

1.5.4.: Change “b” to “B” in column 4.C(1)

1.5.5.1.: Delete “B” in column 4.C(1)

1.5.5.2.: Delete “B” in column 4.C(1)

1.5.5.3.: Delete “B” in column 4.C(1)

1.5.6.: Change “B” to “b” in column 4.C(1); change “2c” to “1b” in column 4.C(2)

1.5.8.: Change “2c” to “C” in column 4.C(2)

1.5.9.: Delete

3.: Delete “B” in column 4.B(1); add “A” in column 4.C(1); change “B” to “1b” in column 4C(2)

4.1.: Change “B” to “b” in column 4.C(1)

4.2.: Change “B” to “b” in column 4.C(1)

4.3.: Change “B” to “b” in column 4.C(1)

4.4.: Change “B” to “b” in column 4.C(1)

4.5.1.: Change “B” to “b” in column 4.C(1)

4.5.2.: Change “B” to “b” in column 4.C(1)

4.5.3.: Change “B” to “b” in column 4.C(1)

4.6.: Change “B” to “b” in column 4.C(1)

4.7.: Change “B” to “b” in column 4.C(1)

4.8.: Change “B” to “b” in column 4.C(1); add “2b” in column 4.C(2)

5.5.: Change “B” to “b” in column 4.C(2)

5.6.: Change task to “AETC training management system (Training Allocation); Delete “A” in column 4.A(1); change “B” to “A” in column 4.B(1)

5.7.: Change task to “Managing Certification and Testing (CerTest); add “A” in column 4.A(1); change “A” to “B” in column 4.B(1); delete “A” in column 4.C(1)

5.8.: Change task to “National/DoD Certification requirements”; delete “A” in 4.A(1)

5.9.: Add task “5.9. AFQTP Requirements”; add “B” in column 4.C(1)

6.1.: Change “A” to “B” in column 4.C(1); delete “B” in column 4.C(2)

6.2.: Change “A” to “B” in column 4.C(1); delete “B” in column 4.C(2)

6.3.: Change “A” to “B” in column 4.C(1); delete “B” in column 4.C(2)

6.4.: Change “A” to “B” in column 4.C(1); delete “B” in column 4.C(2)

7.2.: Delete “B” in column 4.C(2)

7.4.: Change task to “Material acquisition”; delete all training codes

7.4.1.: Add task “7.4.1. Plan logistical support (CEMAS, BOM)”; add “A” in column 4.B(1); add “B” in column 4.C(1); add “2b” in column 4.C(2)

7.4.2.: Add task “7.4.2. IMPAC program”; add “A” to column 4.C(1); add “B” to column 4.C(2)

7.6.: Change “B” to “2b” in column 4.C(2)

7.7.: Add “B” to column 4.C(1)

7.8.: Add “B” to column 4.C(2)

7.10.: Delete “A” in column 4.C(1)

7.13.: Change task to “CE Specific Automated Systems (Computer) Capability

7.13.1.: Change “3c” to “1a” in column 4.C(2)

7.13.2.: Change “3c” to “1a” in column 4.C(2)

7.13.3.: Change task to “Develop automated reports”; change “3c” to “1a” in column 4.C(2)

7.13.4.: Change “3c” to “1a” in column 4.C(2)

7.13.5.: Change “3c” to “1a” in column 4.C(2)

7.15.: Change “B” to “C” in column 4.C(2)

9.2.: Change task to “Hazardous materials handling”; change “C” to “B” in column 4.B(1)

9.3.: Change task to “Lead-based paint (LBP) hazard”; change “A” to “B” in column 4.A(1); delete “B” in column 4.B(1)

9.4.: Change task to “Fire extinguisher training”; change “3c” to “A” in column 4.A(1)

9.5. – 9.7.: Delete

Starting at module 11, all modules will be renamed and will be listed as follows:

Task Knowledge	**Core**	**Col. 4.A(1)**	**Col. 4.B(1)**
11. AFSC SPECIFC SAFETY STANDARDS TR:			
11.1. AFOSH standards for AFS		**A**	**B**
11.2. Remove victim from energized circuit		**a**	**b**
11.3. Apply first aid procedures for shock		**a**	**b**
11.4. Cardiopulmonary resuscitation (CPR)		**3c**	
11.5. Manual lifting awareness		**A**	**B**

12. AFSC SPECIFIC PUBLICATIONS TR: TOs 0-1-01, 0-1-02, 00-2-1 00-5-1, 00-5-2, 00-20-7			
12.1 Technical Order system		**A**	**B**
12.2 Use technical orders	*****	**2b**	**c**
12.3 Technical order improvement reporting		**A**	**B**
12.4. Initial Federal Hazard Communication Training Program (FHCTP) TR: DoD 6050.5-G-1; AFOSH 121-21; AFI 91-302		**A**	
12.5. AFOSH standards for AFS		**A**	**B**
13. ELECTRICAL POWER PRODUCTION TOOLS AND TEST EQUIPMENT TR: AFIs 32-1031; 32-1044; T.O.s 32, 33, 34, 35 Series			
13.1. Use general mechanics hand tools		**2b**	
13.2 Special engine overhaul tools			**B**
13.3 Use precision measurement equipment:			
13.3.1 Torque handle		**1a**	**b**
13.3.2 Micrometer		**1a**	**b**
13.3.3 Depth gauge		**a**	**b**
13.4 Use engine performance test devices:			
13.4.1 Hand-held tachometer		**a**	**b**
13.4.2 Compression tester		**a**	**b**
13.4.3 Injector tester		**a**	**b**
13.4.4 Vacuum tester		**a**	**b**
13.5 Use electrical test equipment:			
13.5.1 Multimeter	*****	**2b**	**c**
13.5.2 Vibroground***		**2b**	**c**
13.5.3 Clamp-on ammeter		**1a**	**b**
13.5.4 Megohmmeter		**1a**	**b**
13.5.5 Battery load tester		**2b**	**c**
13.5.6 Phase sequence indicator		**2b**	**c**
14. GENERAL POWER PRODUCTION TASKS TR: AFI 32-1062; T.O.s 32, 33, 34, 35 series; applicable manufacturer's manuals			
14.1 Perform corrosion control		**b**	**c**
14.2 Engine pre-heating devices			

14.2.1 Coolant heater			
14.2.1.1 External		**A**	**B**
14.2.1.2 Internal		**A**	**B**
14.2.2 Lube oil heater		**A**	**B**
14.2.3 Glowplugs		**A**	**B**
14.3 Engine starting aids		**A**	**B**
14.4 Load Banks			
14.4.1 Components and theory of operation		**A**	**B**
14.4.2 Connect cables		**2b**	**c**
14.4.3 Configure for proper voltage		**2b**	**c**
14.4.2 Troubleshoot		**b**	**c**
14.4.3 Inspect		**2b**	**c**
14.4.4 Replace components			**b**
14.4.5 Operate***		**2b**	**c**
14.5 Battery Chargers			
14.5.1 Components and theory of operation		**A**	**B**
14.5.2 Troubleshoot	*****		**b**
14.5.3 Inspect		**2b**	**b**
14.5.4 Replace components			**b**
14.5.5 Adjust		**2b**	**b**
15. ELECTRICAL FUNDAMENTALS TR: T.O. 31-1-141 Series; Applicable manufacturer's manuals			
15.1 Basic electrical concepts and terms		**B**	**C**
15.2 Principles of DC Circuits		**B**	**C**
15.3 Fundamentals of alternating current		**B**	**C**
15.4 Principles of AC Circuits		**B**	**C**
15.5 Electrical components and symbols		**A**	**B**
15.6 Test electrical components:			
15.6.1 Inductors		**2b**	**c**
15.6.2 Capacitors		**2b**	**c**
15.6.3 Resistors		**2b**	**c**
15.7 Electronic components and symbols		**A**	**B**
15.8 Principles of operation of:			
15.8.1 Diodes		**A**	**B**
15.8.2 Zener diodes		**A**	**B**
15.8.3 SCRs		**A**	**B**
15.9 Test:			
15.9.1 Diodes	*****	**2b**	**c**
15.9.2 Zener diodes		**2b**	**c**

15.9.3 SCRs		**2b**	**c**
15.6 Interpret wiring diagrams	*	**2b**	**c**
15.7 Troubleshoot electrical circuits	**	**2b**	**c**
16. GENERATOR SET GROUNDING FUNDAMENTALS **TR: AFI 32-1065**			
16.1 Grounding principles			
16.1.1 Static		**B**	**C**
16.1.2 Equipment		**B**	**C**
16.2 Install equipment grounds	*	**2b**	**b**
16.3 Test grounds using Vibroground		**2b**	**c**
16.4 Troubleshoot grounds		**b**	**b**
17. ENGINE MAINTENANCE FUNDAMENTALS **TR: AFP 91-46; T.O.s 35, 38 Series**			
17.1 Gasoline engines			
17.1.1 Components and theory of operation		**A**	**B**
17.1.2 Troubleshoot engine malfunctions	**	**a**	**b**
17.1.3 Perform tune-up	*	**2b**	**c**
17.2 Diesel engines			
17.2.1 Components and theory of operation:			
17.2.1.1 Two cycle		**A**	**B**
17.2.1.2 Four cycle		**B**	**C**
17.2.2 Troubleshoot diesel engine internal malfunctions		**a**	**b**
17.2.3 Inspect:			
17.2.3.1 Camshaft			**b**
17.2.3.2 Vibration damper			**b**
17.2.3.3 Timing gears			**b**
17.2.3.4 Cylinder head			**b**
17.2.3.5 Intake and exhaust valves			**b**
17.2.3.6 Engine block			**b**
17.2.4 Replace:			
17.2.4.1 Camshaft			**b**
17.2.4.2 Vibration damper			**b**
17.2.4.3 Timing gears			**b**
17.2.4.4 Intake and exhaust valves			**b**
17.2.4.5 Valve spring assemblies			**b**
17.2.4.6 Cylinder head			**b**
17.2.4.7 Engine seals/gaskets			**b**

17.2.5 Adjust:			
17.2.5.1 Intake and exhaust valves			**b**
17.2.5.2 Camshaft timing			**b**
18. ENGINE DC ELECTRICAL SYSTEM **TR: AFP 91-46; T.O. 35 Series**			
18.1 Components and theory of operation		**A**	**B**
18.2 Troubleshoot	**	**b**	**c**
18.3 Inspect:			
18.3.1 Battery charging alternator		**1a**	**b**
18.3.2 Starter motor		**1a**	**b**
18.3.3 Starter solenoid		**1a**	**b**
18.4 Replace:			
18.4.1 Battery charging alternator	*	**1a**	**b**
18.4.2 Starter motor	*	**1a**	**b**
18.4.3 Starter solenoid		**1a**	**b**
18.5 Batteries			
18.5.1 Types		**A**	**B**
18.5.2 Service		**2b**	**c**
18.5.3 Replace	*	**2b**	**c**
19. ENGINE LUBRICATION SYSTEM **TR: AFP 91-46; T.O.s 32, 33, 34, 35 Series**			
19.1 Components and theory of operation		**A**	**B**
19.2 Troubleshoot	**	**b**	**c**
19.3 Inspect		**1a**	**b**
19.4 Replace components:			
19.4.1 Oil pump			**b**
19.4.2 Oil cooler			**b**
19.4.3 Filter body			**b**
19.4.4 Sending units			**b**
19.4.5 Protective devices			**b**
19.5 Service engine lubrication system	*	**2b**	**c**
19.6 Test lube oil		**1a**	**b**
20. FUEL SYSTEMS **TR: AFP 91-46; T.O.s 32, 33, 34, 35 Series**			
20.1 Gasoline			
20.1.1 Components and theory of operation		**B**	**C**

20.1.2 Troubleshoot			**b**
20.1.3 Inspect gasoline fuel system components:			
20.1.3.1 Fuel pump		**1a**	**b**
20.1.3.2 Filters/strainers		**1a**	**b**
20.1.3.3 Carburetors		**1a**	**b**
20.1.4 Replace components:			
20.1.4.1 Fuel pump			**b**
20.1.4.2 Filters/strainers	*		**b**
20.1.4.3 Carburetors			**b**
20.1.5 Adjust carburetor	*	**a**	**b**
20.1.6 Test fuel for water content			**a**
20.2 Diesel			
20.2.1 Types, components and theory of operation		**B**	**C**
20.2.2 Troubleshoot	**	**a**	**b**
20.2.3 Inspect:			
20.2.3.1 Fuel transfer pumps		**a**	**b**
20.2.3.2 Fuel injection pumps		**a**	**b**
20.2.3.3 Filters/strainers		**1a**	**b**
20.2.4 Replace components:			
20.2.4.1 Fuel transfer pumps		**a**	**b**
20.2.4.2 Fuel injection pumps		**a**	**b**
20.2.4.3 Filters/strainers	*	**1a**	**b**
20.2.4.4 Injectors		**a**	**b**
20.2.4.5 Sending units		**a**	**b**
20.2.4.6 Protective devices		**a**	**b**
20.2.5 Test components:			
20.2.5.1 Fuel injection pumps			**b**
20.2.5.2 Injectors			**b**
20.2.6 Calibrate injectors			**b**
20.2.7 Time fuel injection pumps			**b**
20.2.8 Test fuel for water content		**1a**	**b**
21. ENGINE COOLING SYSTEM **TR: AFI 32-1062; T.O. 35 Series**			
21.1 Components and theory of operation		**A**	**B**
21.2 Troubleshoot	**	**b**	**c**
21.3 Inspect components:			
21.3.1 Water pump		**2b**	**c**
21.3.2 Radiator		**2b**	**c**
21.3.3 Hoses		**2b**	**c**
21.3.4 Drive belts		**2b**	**c**

21.4 Replace components:			
21.4.1 Water pump			**b**
21.4.2 Thermostat		**1a**	**b**
21.4.3 Radiator			**b**
21.4.4 Hoses			**b**
21.4.5 Drive belts	*		**b**
21.4.6 Heater			
21.4.6.1 External			**b**
21.4.6.2 Internal			**b**
21.4.7 Sending units			**b**
21.4.8 Protective devices			**b**
21.4.9 Filters		**a**	**b**
21.5 Service	*	**2b**	**c**
21.6 Flush		**a**	**b**
21.7 Test antifreeze		**1a**	**b**
22. ENGINE GOVERNOR SYSTEMS TR: AFI 32-1062; T.O. 35 Series			
22.1 Hydraulic governors			
22.1.1 Components and theory of operation		**A**	**B**
22.1.2 Troubleshoot			**b**
22.1.3 Inspect		**a**	**b**
22.1.4 Replace			**b**
22.1.5 Test overspeed trip device			**b**
22.1.6 Adjust:			
22.1.6.1 Linkage			**b**
22.1.6.2 Controls			**b**
22.1.6.3 Overspeed trip device			**b**
22.1.7 Perform compensation adjustments			**b**
22.2 Electronic Governors			
22.2.1 Components and theory of operation		**B**	**C**
22.2.2 Troubleshoot	**		**b**
22.2.3 Inspect:			
22.2.3.1 Control module		**a**	**b**
22.2.3.2 Actuator		**a**	**b**
22.2.3.3 Magnetic pickup		**a**	**b**
22.2.4 Replace:			
22.2.4.1 Control module		**a**	**b**
22.2.4.2 Actuator		**a**	**b**
22.2.4.3 Magnetic pickup		**a**	**b**

22.2.5 Test overspeed trip device			**b**
22.2.6 Adjust			
22.2.6.1 Droop	**	**2b**	**c**
22.2.6.2 Gain	**	**2b**	**c**
22.2.6.3 Idle	**	**2b**	**c**
22.2.6.4 Run	**	**2b**	**c**
23. INTAKE AND EXHAUST SYSTEMS TR: AFI 32-1062; T.O. Series; applicable manufacturer's manuals			
23.1 Components and theory of operation		**A**	**B**
23.2 Troubleshoot	**		**b**
23.3 Inspect components			
23.3.1 Air cleaner/filter		**1b**	**c**
23.3.2 Turbocharger		**1b**	**c**
23.3.3 Intercooler		**1b**	**c**
23.3.4 Intake manifold		**1b**	**c**
23.3.5 Exhaust manifold		**1b**	**c**
23.3.6 Expansion joint		**1b**	**c**
23.3.7 Muffler		**1b**	**c**
23.4 Replace components			
23.4.1 Air cleaner/filter		**2b**	**c**
23.4.2 Turbocharger			**b**
23.4.3 Intercooler			**b**
23.4.5 Intake manifold			**b**
23.4.6 Exhaust manifold			**b**
23.4.7 Expansion joint			**b**
23.4.4 Muffler		**a**	**b**
23.5 Service		**1a**	**b**
24. AC GENERATING SYSTEM TR: AFM 91-3; AFI 32-1062; T.O. 35 Series; applicable manufacturer's manuals			
24.1 Alternator			
24.1.1 Components and theory of operation		**A**	**B**
24.1.2 Troubleshoot	**		**b**
24.1.3 Inspect:			
24.1.3.1 Rectifier assembly		**a**	**b**
24.1.3.2 Surge suppressor		**a**	**b**
24.1.3.3 Windings		**a**	**b**
24.1.4 Replace			

24.1.4.1 Rectifier assembly			**b**
24.1.4.2 Surge suppressor			**b**
24.1.4.3 Alternator assembly			**b**
24.2 Controls			
24.2.1 Components and theory of operation		**A**	**B**
24.2.2 Troubleshoot	**		**b**
24.2.3 Inspect:			
24.2.3.1 Voltage regulator			
24.2.3.1.1 Self exciting		**a**	**b**
24.2.3.1.2 Permanent magnet		**a**	**b**
24.2.3.2 Exciter			**b**
24.2.3.3 Transformers			**b**
24.2.3.4 Control panel components		**1a**	**b**
24.2.4 Replace:			
24.2.4.1 Voltage regulator			**b**
24.2.4.2 Exciter			**b**
24.2.4.3 Transformers			**b**
24.2.4.4 Control panel components		**a**	**b**
24.3 Protective devices			
24.3.1 Components and theory of operation		**A**	**B**
24.3.2 Troubleshoot	**		**b**
24.3.3 Inspect			
24.3.3.1 Circuit breakers			**b**
24.3.3.2 Relays			**b**
24.3.3.3 Fuses		**1a**	**b**
24.3.4 Replace			
24.3.4.1 Circuit breakers			**b**
24.3.4.2 Relays			**b**
24.3.4.3 Fuses	*	**1a**	**b**
25. FIXED EMERGENCY STANDBY GENERATOR SET OPERATION **TR: Applicable manufacturer's manuals**			
25.1 Perform			
25.1.1 Pre-operational inspection	*	**2b**	**c**
25.1.2 During operation inspection	*	**2b**	**c**
25.1.3 Post-operational inspection	*	**2b**	**c**
25.1.4 Single unit operation	*	**2b**	**c**
25.1.5 Periodic inspections:			
25.1.5.1 Weekly			**b**

25.1.5.2 Monthly			**b**
25.1.5.3 Semi-annual			**b**
25.1.5.4 Annual			**b**
25.1.6 Emergency shutdown procedures		**b**	**c**
25.2 Annotate generator set maintenance/operating record		**a**	**b**
25. AUTOMATIC TRANSFER SWITCHES **TR: T.O. 35CA6 Series; applicable manufacturer's manuals**			
25.1 Components and theory of operation		**A**	**B**
25.2 Troubleshoot			**b**
25.3 Determine compatibility between transfer switch, generator, and electrical service	**	**a**	**b**
25.4 Install			**b**
25.5 Inspect		**1a**	**b**
25.6 Replace components			**b**
25.7 Test		**1a**	**b**
25.8 Adjust			**b**
26. AIRCRAFT ARRESTING BARRIERS **TR: T.O. 35E8-2 Series; AFI 32-1043**			
26.1 MA-1A Barrier; Components, theory of operation, and configuration		**A**	**B**
26.2 BAK-9 Aircraft Arresting Gear; Components, theory of operation, and configuration		**A**	**B**
26.3 BAK-12 Aircraft Arresting System			
26.3.1 Components, theory of operation and configuration		**B**	**C**
26.3.2 Troubleshoot:			
26.3.2.1 Brake assembly			**b**
26.3.2.2 Rewind system			**b**
26.3.2.3 Hydraulic system			**b**
26.3.3 Perform			
26.3.3.1 Daily inspection		**2b**	**c**
26.3.3.2 Weekly inspection		**2b**	**c**
26.3.3.3 Monthly inspection		**2b**	**c**
26.3.3.4 Quarterly inspection		**1a**	**b**
26.3.3.5 Semi-annual inspection		**1a**	**b**
26.3.3.6 After-arrestment procedures		**2b**	**c**
26.3.4 Replace components of:			

26.3.4.1 Brake assembly			**b**
26.3.4.2 Rewind system			**b**
26.3.4.3 Hydraulic system			**b**
26.4 BAK-13 Aircraft Arrestment System; Components, theory of operation and configuration		**A**	**B**
26.5 BAK-14 Support System; Components, theory of operation and configuration		**A**	**B**
26.6 BAK-15 Aircraft Arresting System; Components, theory of operation and configuration		**A**	**B**
26.7 E-5 Aircraft Arresting System; Components, theory of operation and configuration		**A**	**B**
26.8 Textile Brake Aircraft Arresting System; Components, theory of operation and configuration		**A**	**B**
27. AFSC SPECIFIC CONTINGENCY RESPONSIBILITIES **TR: AFIs 10-210, 10-211, 32-1026; T.O.s 35E-5-6-1, 35E4-132-1, 35E4-94-1; Army TMs 10-8340-207-14, 10-450-200-12; WMP-1, Annex S, (Mar 95); AFPAM 10-219, Vol 2, 3, 4, & 5**			
27.1 Mobile Generators			
27.1.1 200 KW or less			
27.1.1.1 Set up generator for connection to load			
27.1.1.1.1 Position generator		**2b**	**c**
27.1.1.1.2 Install ground		**2b**	**c**
27.1.1.1.3 Configure for proper voltage		**2b**	**c**
27.1.1.1.4 Cables			
27.1.1.1.4.1 Selection		**B**	**C**
27.1.1.1.4.2 Phase Identification		**B**	**C**
27.1.1.1.4.3 Connect	*****	**2b**	**c**
27.1.1.1.5 Check phase rotation	*****	**2b**	**c**
27.1.1.2 Perform			
27.1.1.2.1. Inspections			
27.1.1.2.1.1. Pre-operational	*****	**2b**	**c**
27.1.1.2.1.2. During operation	*****	**2b**	**c**
27.1.1.2.1.3. Post-operational	*****	**2b**	**c**
27.1.1.2.4 Single unit operation	*****	**2b**	**c**
27.1.1.2.5 Parallel unit operation	*****	**2b**	**c**
27.1.1.2.6 Scheduled inspections			**c**

27.1.1.2.7 Emergency (battle override) operation		**b**	**c**
27.1.1.3 Test generator set using load bank		**2b**	**b**
27.1.1.4 Disconnect and remove generator from load		**2b**	**c**
27.1.1.5 Determine fuel requirement for extended generator operation		**1a**	**b**
27.1.1.6 Calculate:			
27.1.1.6.1 kW load		**2b**	**c**
27.1.1.6.2 Amperage load		**2b**	**c**
27.1.2 MEP-012 generators			
27.1.2.1 High voltage safety		**B**	**C**
27.1.2.2 Installation			
27.1.2.2.1 Site selection		**B**	**C**
27.1.2.2.2 Position	**	**b**	**c**
27.1.2.2.3 Ground	*	**2b**	**c**
27.1.2.2.4 Set up fuel storage area		**a**	**b**
27.1.2.2.5 Connect fuel supply		**1a**	**b**
27.1.2.2.6 Load cable connection		**A**	**B**
27.1.2.3 Operate			
27.1.2.3.1. Conduct			
27.1.2.3.1.1. Prestart procedures	*	**2b**	**c**
27.1.2.3.1.2. Starting procedures	*	**2b**	**c**
27.1.2.3.1.3. Shutdown procedures		**2b**	**c**
27.1.2.3.2. Perform			
27.1.2.3.2.1. Single unit operation	*	**2b**	**c**
27.1.2.3.2.2. Parallel unit operation	*	**2b**	**c**
27.1.2.3.2.3. Remote operation	*	**2b**	**c**
27.1.2.4. Perform scheduled inspections	**	**a**	**b**
27.1.2.5 Troubleshoot:			
27.1.2.5.1 Engine systems	**		**b**
27.1.2.5.2 Electrical systems			
27.1.2.5.2.1 High voltage	**		**b**
27.1.2.5.2.2 Low voltage	**		**b**
27.1.3 Equipment operation in extreme conditions			
27.1.3.1 Heat		**A**	**B**
27.1.3.2 Cold		**A**	**B**
27.1.3.3 Dust		**A**	**B**
27.1.3.4 Sand		**A**	**B**
27.1.3.5 Effects of hard water		**A**	**B**
27.1.3.6 Emergency (battle override) operation		**A**	**B**

27.1.4 Emergency evacuation procedures (demolition)		**A**	**B**
27.2 Mobile Aircraft Arresting System (MAAS) TR: T.O.s 35E8-2-10-3; 35E8-2-5-4; 35E8-2-10-1S-1; 35E8-2-11-1; 35E8-2-11-2; AFPAM 10-219, Vol 3, 4, & 5; AFI 13-217			
27.2.1 Components, theory of operation and configuration		**B**	**C**
27.2.2 Perform unidirectional installation			
27.2.2.1 Site selection		**B**	**C**
27.2.2.2 Position trailers	**	**2b**	**c**
27.2.2.3 Concrete			
27.2.2.3.1 Install anchor plates	*	**2b**	**c**
27.2.2.3.2 Install turnbuckles	*	**2b**	**c**
27.2.2.4 Soil			
27.2.2.4.1 Install			
27.2.2.4.1.1 Trailer stakes	*	**2b**	**c**
27.2.2.4.1.2 Turnbuckles	*	**2b**	**c**
27.2.2.4.1.3 KM stakelines	*	**2b**	**c**
27.2.2.4.2 Attach KM stakeline to turnbuckle	*	**2b**	**c**
27.2.2.5 Asphalt over soil - Remove required asphalt for KM stakelines		**b**	**c**
27.2.2.6 Install moil points for asphalt exceeding one inch thickness over concrete		**b**	**c**
27.2.3 Perform bidirectional installation			
27.2.3.1 Soil		**b**	**c**
27.2.3.2 Concrete		**b**	**c**
27.2.4 Lightweight fairlead beam			
27.2.4.1 Installation			
27.2.4.1.1 Site selection		**B**	**C**
27.2.4.1.2 Position	**	**1a**	**b**
27.2.4.1.3 Reave tape through fairlead beam		**1a**	**b**
27.2.4.1.4 Install outboard anchoring system	**	**1a**	**b**
27.2.4.1.5 Perform final alignment	**	**1a**	**b**
27.2.4.2 Perform periodic inspection:			
27.2.4.2.1 Daily		**a**	**b**
27.2.4.2.2 Monthly		**a**	**b**
27.2.4.3 Troubleshoot		**a**	**b**
27.2.5 Attach hook cable	*	**3c**	**c**

27.2.6 Tension hook cable	*	3c	c
27.2.7 Proofload installation	**	2b	c
27.2.8 Reconstitute MAAS		2b	c
27.2.9 Perform:			
27.2.9.1 Daily inspection	*	2b	c
27.2.9.2 Weekly inspection	*	2b	c
27.2.9.3 Monthly inspection	*	2b	c
27.2.9.4 Quarterly inspection	**	1a	b
27.2.9.5 Semi-annual inspection	**	1a	b
27.2.9.6 After-arrestment procedures	**	2b	c
27.2.10 Troubleshoot:			
27.2.10.1 Brake assembly	**	b	c
27.2.10.2 Rewind assembly	**	b	c
27.2.10.3 Hydraulic system	**	b	c
27.2.10.4 Trailer hydraulic system	**	b	c
27.2.11 Replace components of:			
27.2.11.1 Brake assembly		b	c
27.2.11.2 Rewind assembly		b	c
27.2.11.3 Hydraulic system		b	c
27.2.11.4 Trailer hydraulic system		b	c
27.2.12 Determine tape replacement using Regime Chart		2b	b
27.3 Emergency Airfield Lighting System (EALS) TR: AFPAM 10-291, Vol 3, 4, & 5		A	B
27.4 Expedient beddown methods TR: AFPAM 10-219, Vol 2 & 5			
27.4.1 Harvest Eagle (HE) assets			
27.4.1.1 Tent lighting installation TR: AFPAM 10-219, Vol 2		A	B
27.4.1.2 Electrical distribution system installation TR: T.O.s 00-105K-2. 40W4-9-1C, 40W4-13-1, 50D-1-3-1, 35E4-169-1; AFPAM 10-219, Vol 2, 3, 4 & 5		A	B
27.4.2 Harvest Falcon (HF) assets TR: AFI 25-101, AFPAM 10-219, Vol 2, 3 & 5			
27.4.2.1 Remote Area Lighting (RAL) set installation TR: AFPAM 10-219, Vol 5; T.O. 00-105-12		A	B
27.4.2.2 Telescopic floodlight set TR: T.O. 35F5-5-16-1p; AFPAM 10-219, Vol 5; L-6 light set reference			
27.4.2.2.1 Install		1a	b

27.4.2.2.2 Inspect	*	1a	b
27.4.2.2.3 Operate	*	1a	b
27.4.2.2.4 Troubleshoot	**		b
27.4.2.2.5 Maintenance		A	B
27.4.2.3 HF electrical distribution system TR: 35C6-9-1; AFI 32-1065; AFPAM 10-219, Vol 3, 4 & 5			
27.4.2.3.1 Installation			
27.4.2.3.1.1 Primary distribution system		A	B
27.4.2.3.1.2 Secondary distribution system		A	B
27.4.2.3.2 Connect generator to SDC	*	2b	c
27.4.2.4 Initial Deployable Kitchen (IDK) generator		A	B
27.4.2.5 CHAMPS generator and transfer panel		A	B
27.5 Foreign electrical systems TR: AFI 32-1062; AFI 32-1065; T.O.s 00-105A, 35C2-3, 35C6 series			A
27.6 Special purpose vehicles/equipment TR: AFIs 10-210, 23-101, 24-301; AFPD 25-1; AFOSH 91-46; AFPAM 10-219, Vol 4; TA 12; T.O.s 36A12, 36C12 series			
27.6.1 HMMVW			
27.6.2 Front end loader/ w/forklift attachment			
27.6.3 Dump truck			
27.6.4 Electric line truck			

ATTACHMENT 5

CORE Tasks

5-level

10.5. Use Technical Orders
12.5.1. (Use Electrical Test Equipment) Multimeter
12.5.2. (Battery chargers) Troubleshoot
15.1.3. Perform gasoline engine tune-up
15.4.1. (Replace) Battery Charging Alternator
15.4.2. (Replace) Starter Motor
15.5.1.2. (Batteries) Replace
17.3. Service Engine Lubrication System
18.1.3.2. (Replace gasoline fuel system components) Filters/Strainers
18.1.5. Adjust carburetor
18.2.4.3. (Replace components) Filters/Strainers
19.2. (Engine cooling systems) Service
19.4.5. (Replace components) Drive belts
22.X. (Replace) Fuses
26.2. Install equipment grounds
27.X. (Test) Diodes
27.Y. Interpret wiring diagrams
28.1.2. (Perform) Pre-operational inspection
28.1.3. (Perform) Post-operational inspection
28.1.4. (Perform) During operational inspection
28.1.4. Single unit operation
30.1.1.1.3.1.1. (Perform unidirectional installation, concrete) install anchor plates
30.1.1.1.3.1.2. (Perform unidirectional installation, concrete) install turnbuckles
30.1.1.1.3.2.1. (Perform unidirectional installation, soil) install trailer stakes
30.1.1.1.3.2.2. (Perform unidirectional installation, soil) install turnbuckles
30.1.1.1.3.2.3. (Perform unidirectional installation, soil) install KM stakelines
30.1.1.1.3.2.4. (Perform unidirectional installation, soil) attach KM stakeline to turnbuckle
30.1.1.1.X. Attach hook cable
30.1.1.1.Y. Tension hook cable
30.1.1.1.4.1. Perform daily inspection
30.1.1.1.4.2. Perform weekly inspection
30.1.1.1.4.3. Perform monthly inspection
30.2.2.2.2. (Telescopic floodlight set) Inspect
30.2.2.2.3. (Telescopic floodlight set) Operate
30.2.2.6.1.2. Connect generator set to SDC
30.2.4.1.1.2. (Set up generator for connection to load) Install ground
30.2.4.1.1.X. (Set up generator for connection to load) Configure for proper voltage
30.2.4.1.1.3.3. (Cables) Connect
30.2.4.1.1.4. Check phase rotation
30.2.4.1.4. Parallel unit operation
30.2.4.1.2.1. Pre-operational inspection
30.2.4.1.6.1. During operational inspection
30.2.4.1.6.2. Post operational inspection

30.2.4.1.6.4. Single unit operation
30.2.4.2.X. (MEP-12 installation) install ground
30.2.4.2.Y. (MEP-12 installation, operate) conduct pre-start procedures
30.2.4.2.Y. (MEP-12 installation, operate) conduct starting procedures
30.2.4.2.Y. (MEP-12 installation, operate) perform single unit operation
30.2.4.2.Y. (MEP-12 installation, operate) perform parallel operation
30.2.4.2.Y. (MEP-12 installation, operate) perform remote operation

7-level

14.2. Determine compatibility between transfer switch, generator, and electrical service
15.2. (Engine DC electrical systems) Troubleshoot
16.1.2. (Gasoline engines) Troubleshoot engine malfunctions
17.4. Troubleshoot engine lubrication system
18.2.2. (Diesel engine fuel system) troubleshoot
19.5. (Engine cooling system) troubleshoot
20.2.2. (Electronic governors) troubleshoot
20.2.6.1. (Electronic governors, adjust) Droop
20.2.6.2. (Electronic governors, adjust) Gain
20.2.6.3. (Electronic governors, adjust) Idle
20.2.6.4. (Electronic governors, adjust) Run
21.5. (Intake and Exhaust system) troubleshoot
22.2. (AC Generating system) troubleshoot
22.x.x. (Controls) troubleshoot
22.x.x. (Protective devices) troubleshoot
27.7. Troubleshoot electrical circuits
30.1.1.1.3.X. (MAAS) Position trailers
30.1.1.1.3.5.X. (LWFB) Position
30.1.1.1.3.5.X. (LWFB) Install outboard anchoring system
30.1.1.1.3.5.X. (LWFB) Perform final alignment
30.1.1.1.3.8. (MAAS) Proofload installation
30.1.1.1.4.4. (MAAS, perform) Quarterly inspection
30.1.1.1.4.5. (MAAS, perform) Semi-annual inspection
30.1.1.1.4.6. (MAAS, perform) Perform after arrestment procedures
30.1.1.1.5.1. (Troubleshoot) brake assembly
30.1.1.1.5.2. (Troubleshoot) rewind assembly
30.1.1.1.5.3. (Troubleshoot) hydraulic assembly
30.1.1.1.5.4. (Troubleshoot) trailer hydraulic system
30.2.2.2.4. (Telescopic Floodlight Set) Troubleshoot
30.2.4.2.X. (MEP-12) Position
30.2.4.2.y. (MEP-12) Perform scheduled inspections
30.2.4.2.y. (MEP-12) Troubleshoot engine systems
30.2.4.2.y. (MEP-12) Troubleshoot electrical high voltage system
30.2.4.2.y. (MEP-12) Troubleshoot electrical low voltage system

ATTACHMENT 6

CTS/ETCA Changes

J3AZR3E052 013 CE Advanced Electronics
The membership agreed to table the review of this course due to the magnitude of necessary reconstruction of the course. All agreed that this course did not meet the needs of the Electrical Power Production career field and wanted it to do so. The membership agreed to provide recommendations to SMSgt Deese by 30 Sep 00.
(See Action Item 8)

J3AZR3E072 002 Troubleshooting Electrical Power Generating Equipment
- Change the course number to J3AZR3E052 002 to better identify the necessary target audience.
- See attachment 9 for recommendations

J3AZR3E072 113 Bare Base Power Generation (Diesel)
- Change the course number to J3AZR3E052 113 to better identify the necessary target audience.
- Change the name to "Contingency Power Generator Operation"
- See attachment 10 for recommendations

J4AZT3E052 003 Aircraft Arresting Barriers, BAK-12 & 9
- Delete the BAK-9 portion from the course and rename to *Aircraft Arresting System BAK-12*
- See attachment 11 for recommendations

J4AZT3E052 007 Hook Cable Support System, BAK-14
- See attachment 12 for recommendations

J4AZT3E052 008 Mobile Aircraft Arresting Barriers (MAAS)
- See attachment 13 for recommendations

J3AZR3E052 114 diesel Engine Overhaul and Generator Set Operation
- The group agreed to change the name to "Contingency Power Generator Maintenance"
- The membership agreed to table the review of this course due to the magnitude of necessary reconstruction of the course. All agreed that this course did not meet the needs of the Electrical Power Production career field and wanted it to do so. The membership agreed to let the course staff develop a proposed CTS to SMSgt Deese by 30 Sep 00. (See Action Item 10)

ATTACHMENT 7

Electrical Power Production U&TW Action Items

ITEM	OPR/OCR	ECD	COMP
1. Submit recommended AFMAN 36-2108 changes to AFPC/DPPAC **STATUS:**	**OPR: HQ AFCESA/CEOT SMSgt Deese**	**Oct 00**	
2. Submit new CFETP for publication to field in Jul 01. **STATUS:**	**OPR: 366th TRS/TTR Mr. Tom Kee** **OCR: SMSgt Deese**	**May 01**	
3. Start new course **STATUS:**	**OPR: 366 TRS/TTED Mr. Cheatle/Merritt**	**Oct 01**	
4. Submit new CDCs for publication to field by 1 Feb 02 **STATUS:**	**OPR: 366 TRS/TTED MSgt Allen**	**Sep 01**	
5. Start new supplemental courses **STATUS:**	**OPR: 366 TRS/TTRT Mr. Tom Kee**	**Oct 01**	
6. Complete new AFQTPs **STATUS:**	**OPR: SMSgt Deese**	**Jan 01**	
7. Request TMs send out email to MAJCOMs announcing supplemental course vacancies. **STATUS:**	**OPR: SMSgt Deese**	**Aug 00**	
8. Tabled review of CE Advanced Electronics course. Membership will submit changes via email to CEOT. **STATUS:**	**OPR: U&TW membership** **OCR: SMSgt Deese**	**Sep 00**	
9. Send message to notify MAJCOMs and CENTAF that 3E0X2 personnel are not to touch any high voltage distribution components beyond the generator bushings. **STATUS:**	**OPR: SMSgt Deese**	**Aug 00**	
10. 366 TRS / Power Pro. Element develop CTS for "Contingency Power Generator Maintenance" Course. **STATUS:**	**OPR: 366 TRS / PP Element** **OCR: SMSgt Deese**	**Sep 00**	

ATTACHMENT 8

Course Training Standard (CTS)

J3AZR3E052 002

Troubleshooting Electrical Power Generating Equipment

QUALITATIVE REQUIREMENTS
Tasks, Knowledge, and Proficiency Level

		Proficiency Code
1.	SAFETY	
a.	Generator Set Safety	B
b.	Electrical Equipment Safety	B
c.	Test Equipment Safety	B
d.	Apply first aid procedures	c
2.	DC CIRCUITS	
a.	Series characteristics	B
b.	Parallel characteristics	B
c.	Series-parallel characteristics	B
3.	AC Power Generation Characteristics	B
4.	TROUBLESHOOTING GENERATORS	
a.	Wiring diagrams	B
b.	Panel board meters	B
c.	Extract circuits	3c
d.	Locate AC and DC electrical faults	2b
5.	Troubleshooting Electromechanical Auto Transfer Panels	
a.	Components and theory of operation	B
b.	Locate faults	2b
6.	Troubleshooting solid State Auto Transfer Panels	
a.	Components and theory of operation	B
b.	Locate faults	2b

Attachment 9

Course Training Standard (CTS)

J3AZR3E052 113

Contingency Power Generator Operation

QUALITATIVE REQUIREMENTS
Behavioral Statements

		Proficiency Codes
1.	Explain safety precautions when working on Contingency Power Generator systems.	B
2.	Identify descriptions of components on the MEP-007B generator.	B
3.	Identify location of components on the MEP-007B generator.	B
4.	Perform preventive maintenance on the MEP-007B generator.	2c
5.	Operate the Mep-007B generator.	2c
6.	Interpret electrical wiring diagrams.	B
7.	Extract electrical control circuits of the MEP-007B generator. (a) AC (b) DC	2c
8.	Test and adjust major engine and electrical components on the MEP-007B generator.	2c
9.	Identify steps of troubleshooting.	B
10.	Identify different types of electrical malfunctions	B
11.	Troubleshoot electrical malfunctions on the MEP-007B. (a) AC (b) DC	2c
12.	Identify descriptions of components on the MEP-806A generator.	B
13.	Identify location of components on the MEP-806A generator.	B
14.	Perform preventive maintenance on the MEP-806A generator.	2c
15.	Operate the MEP-806A generator. (a) Single unit operation (b) Parallel operation	2c
16.	Extract electrical control circuits of the MEP-806A generator (a) AC (b) DC	2c
17.	Test and adjust major engine and electrical components on the MEP-806A generator.	2c
18.	Troubleshoot electrical malfunctions on the MEP-806A generator. (a) AC (b) DC	2c Attachment 10

19.	Identify basic facts and terms pertaining to electrical distribution centers.	B
20.	Identify basic facts and terms pertaining to MEP-012A fuel lines, electrical cables, and equipment control racks.	B
21.	Identify relationship of basic facts and terms pertaining to Bare Base shelters.	B
22.	Explain the principles of War Reserve Materiel.	B
23.	Identify major components and operate the Start Device.	B
24.	Identify descriptions of components on the MEP-012A generator.	B
25.	Identify location of components on the MEP-012A generator.	B
26.	Perform preventive maintenance on the MEP-012A generator. (a) Electrical (b) Mechanical	2c
27.	Operate the MEP-012A generator. (a) Single unit operation (b) Parallel operation	2c
28.	Extract electrical control circuits of the MEP-012A generator (a) AC (b) DC	2c
29.	Test and adjust major engine and electrical components on the MEP-012A generator.	2c
30.	Troubleshoot electrical malfunctions on the MEP-012A generator. (a) AC (b) DC	2c

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Summary of Changes:

This course was changed in order to incorporate the MEP-806A Tactical Quiet Generator into supplemental course training. The Tactical Quiet series of generators are the DOD replacement units for the existing MEP-004 - 012 series. Existing course material on the MEP-007B and MEP-012A generators were reduced in order to incorporate the MEP-806A generator into the course.

Course Training Standard (CTS)

J4AZT3E052 003

Aircraft Arresting System BAK-12

QUALITATIVE REQUIREMENTS
Tasks, Knowledge, and Proficiency Level

			Proficiency Code
1.	Arresting Barrier Safety		C
2.	Use technical orders		3c
3.	BAK-12 Aircraft Arresting System		
	a.	Components, Theory of Operation, and Limitations	B
	b.	Perform system inspection	2b
	c.	Perform system maintenance	2b
	d.	Troubleshooting	b

Attachment 11

Course Training Standard (CTS)

J4AZT3E052 007

Hook Cable Support System, BAK-14

QUALITATIVE REQUIREMENTS
Tasks, Knowledge, and Proficiency Level

			Proficiency Code
1.	Arresting Barrier Safety		C
2.	Use technical orders		3c
3.	BAK-14 HOOK CABLE SUPPORT SYSTEM		
	a.	Components, Theory of Operation, and Limitations	B
	b.	Perform system inspection	2b
	c.	Perform system maintenance	2b
	d.	Troubleshooting	b

Attachment 12

Course Training Standard (CTS)

J4AZT3E052 008

Mobile Aircraft Arresting System (MAAS)

QUALITATIVE REQUIREMENTS
Tasks, Knowledge, and Proficiency Level

			Proficiency Code
1.	MAAS Safety		C
2.	Use technical orders		3c
3.	MAAS		
	a.	Components, Theory of Operation, and Limitations	B
	b.	Install MAAS	2b
	c.	Perform system inspection	2b
	d.	Perform system maintenance	2b
	e.	Troubleshooting	b

Attachment 13